

REMARKS

In the Response mailed December 7, 2004, we traversed the rejection of claims 1-3, 22 and 25 of the application on the basis that the Martin et al. '305 patent was misconstrued by the Examiner. We continue that traverse in this Supplemental Response.

This Supplemental Response is primarily submitted in view of the fact that the Applicant overlooked the Examiner's recommendation that claims 6-21, 23-24 and 26-29 be rewritten in independent form. The claims submitted herewith follow that suggestion and are submitted for the purposes of obtaining more independent claims. Applicant gratefully acknowledges the Examiner's statement of reasons for allowance of the allowed claims. However, in view of Applicant's traverse of the primary reference, Martin et al. '305, Applicant does not want to infer from any amendments made herein that Applicant agrees either with the Examiner's reasons for rejecting the independent claims from which these claims originally depended, or with all of the Examiner's reasons for allowance.

It is further noted that claims 4 and 5 were rejected under § 103(a) "as being unpatentable over Matros in view of design choice." We did not comment on the Matros reference in the previously-filed response because no Matros patent was cited in the Office Action nor identified in any way. A search of the USPTO database did not identify the Matros patent to which the Examiner referred. On December 29 during a phone call between counsel and the Examiner, it was

determined that the reference to Matros was a typographical error, and that the reference was meant to refer to the same Martin et al. '305 patent upon which the § 102(b) rejection was based.

With this clarification, Applicant is now prepared to comment upon this rejection. It is understood that the Examiner's rejection is that all the elements claimed in claims 4 and 5 are disclosed in Martin et al. '305 except the heat ranges, and that the latter are a matter of design choice. The Examiner further states "there is nothing in the record which establishes that the claimed parameters present a novel or unexpected result." Applicant respectfully disagrees on at least two counts. The first count has already been stated in our December 7 response, *i.e.*, that Martin does not disclose all the claimed elements; specifically, there is no catalytic reaction in the heat chamber of Martin. As to the second point, Applicant designates a temperature range at which it is understood that catalytic activity takes place, resulting in the improved mixture of gases in the exhaust stream. Not surprisingly, Martin does not disclose or suggest the claimed ranges as he was not dealing with a catalytic reaction. This is a difference in kind, not merely of degree, over the prior art cited. Although Martin discloses a reduction of particulate matter, he does not disclose nor claim a reduction of NO_x, of carbon dioxide nor carbon monoxide. These gases are among the most noxious elements of air pollution for which reductions are sought, and those which Applicant was attempting to reduce. He succeeded. Applicant's system reduces all of them,

producing in combination an unexpected result over the prior art; in a novel, non-obvious implementation. While there is no apparent reason why Martin would or should employ these temperatures in his system, if he did employ these temperatures, Applicant's improved results would not obtain because the result would likely be only a somewhat reduced degree of oxidization without reduction of NO_x, CO₂ or CO. It is believed Martin may not work at all at these temperatures. As we have said, the Martin system is unlike that of Applicant's.

Further, Martin does not disclose any test results except in terms of a lower concentration of unburned particulate matter in the exhaust gas stream. But he does indicate that oxides of nitrogen (NO_x) concentrations might go up as a higher concentration of particulate matter is incinerated. Martin then suggests that a catalytic converter might need to be added downstream to process increased NO_x. He says nothing about the treatment of, nor the concentration of other important gases, such as carbon monoxide, carbon dioxide or oxygen, in the exhaust gas stream after being processed by his system. Applicant's disclosure provides several examples of the improved nature of the exhaust gas.

Another significant aspect of Applicant's invention is the oxygen content of the exhaust gas, which is substantially that percentage present in ambient air (*i.e.*, 18-20%). This significantly enhances the nature of the exhaust, and also makes it possible to connect the exhaust into the air intake of the engine to form a closed system, as one of the implementations of Applicant's invention. Significant

reductions in CO₂ and CO are also demonstrated. In some states, including California, legislation has been enacted requiring diesel and gasoline engines to reduce CO₂ emissions well below present-day levels. These are among the non-obvious implications of Applicant's process, of which Martin would not obtain at these temperature ranges or otherwise.

Analysis of the Martin process reveals that his system merely further oxidizes the particulate matter. This would necessarily consume oxygen, not result in an increase of oxygen in the exhaust stream, which Applicant submits is one of the important results of the catalytic action of his converter, in combination with other elements. This oxidization might suggest why Martin gets an increase in NO_x.

As pointed out, Martin expressly states that his system is not a catalytic converter. The materials in Martin's heat chamber are described as steel balls or other matter which are chemically inert in the process. These non-reactive materials serve the function of prolonging the transit time of the exhaust through the chamber, thereby keeping the exhaust gases in contact with the oxidizing heat source for a longer period of time for more complete combustion.

In summation, we pointed out here, as we did in our December 7 response, that the limitations of claim 1 are not disclosed in the prior art and, accordingly, the temperature ranges of claims 4 and 5 are not "merely discovered workable or optimum ranges" as argued by the Examiner. Therefore, it would not be obvious to

adapt Martin by using these temperature ranges as it would point away from Applicant's invention.

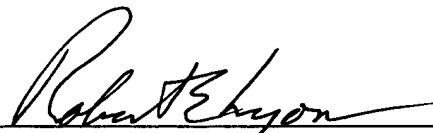
It is respectfully submitted that the claims as amended and submitted herewith are in condition for allowance. The preparation of formal drawings is being undertaken. Applicant awaits a favorable response from the Examiner including a notice of allowance of all claims.

Respectfully submitted,

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